AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-65. canceled.

66. (previously presented): A system for modeling thrombopoietic lineage in an individual, said system comprising:

a thrombopoiesis system model including a process progression model, for cells involved in thrombopoiesis, said progression model including multiplication and differentiation; and

a system model modifier, wherein said thrombopoiesis system model is modified by the system model modifier based on parameters specific to the individual.

67. (previously presented): The system of claim 66 wherein the system model comprises a progression of cells involved in diseased thrombopoiesis.

68. previously presented: The system of claim 67 wherein diseased thrombopoiesis includes thrombocytopenia.

69. (previously presented): The system of claim 67 wherein the system model comprises effects of at least one drug in the progression of cells involved in thrombopoiesis.

70. (previously presented): The system of claim 69 wherein said at least one drug is thrombopoietin (TPO).

71. (previously presented): The system of claim 67 wherein said process model is adapted to imitate a course of the individual's bone marrow progression, peripheral platelet counts and TPO concentration changes.

72. (previously presented): The system of claim 67, wherein said process model comprises cell-suppressive treatment effects and effects of administration of TPO to a patient.

73. (previously presented): The system of claim 72, wherein said cell-suppressive treatment is chemotherapy.

74. (original): The system of claim 66 wherein said process model further comprises a plurality of compartments.

75. (previously presented): The system of claim 74 wherein said compartments include:

a stem cell (SC) compartment that is capable of modeling bone marrow hemopoietic progenitors that have an ability to differentiate into more than one cell line wherein cells in the stem cell compartment proliferate, mature and differentiate into one of megakaryocyte progenitors and new stem cells;

a colony forming units - megakaryocytes (CFU-Meg) compartment that is capable of modeling megakaryocyte progenitors getting committed as a megakaryocyte line and spending some time multiplying and maturing;

a megakaryoblast (MKB) compartment that is capable of modeling receiving of cells from CFU-Meg compartment, wherein the cells in the MKB compartment have lost their ability to proliferate but are not mature to release platelets;

an MK16 compartment that is capable of modeling receiving of cells from the MKB compartment, wherein a subset of cells in the MK16 compartment releases platelets at a constant rate until the subset of cells exhausts its capacity to release platelets and is disintegrated and a second subset of cells does not release platelets but continues with endomitosis;

an MK32 compartment that is capable of modeling receiving of the second subset of cells from the MK16 compartment, wherein a subset of cells in this compartment releases platelets and a second subset of cells does not release platelets but continues with endomitosis;

an MK64 compartment that is capable of modeling receiving of the second subset of cells from the MK32 compartment wherein a subset of cells in this compartment releases platelets and a second subset of cells does not release platelets but continues with endomitosis;

an MK128 compartment that is capable of modeling receiving of the second subset of cells from the MK64 compartment wherein a subset of cells in this compartment releases platelets;

a platelets (PL) compartment.

76. (previously presented): The system of claim 75 wherein the process model further comprises computations that include an effect of apoptosis on cell numbers.

77. (previously presented): The system of claim 75 wherein the process model further comprises the effects of TPO on the SC, CFU-Meg and MKB compartments.

78. (original): The system of claim 77 wherein the effects are expressed in terms of effects of TPO concentration on amplification rate, rate of cell maturation and a fraction of cells that undergo endomitosis.

79. (previously presented): The system of claim 78 wherein when the TPO concentration is above a predetermined threshold level, the amplification rate of cells in the SC compartment is affected and when the TPO concentration is below the predetermined threshold, the amplification rate is dependent only on a current number of cells.

80. (original): The system of claim 77 wherein in the CFU-Meg compartment the cells are sensitive to TPO concentration regardless of the concentration of TPO.

81. (previously presented): The system of claim 77, wherein a transit time of a cell is the same in all platelet releasing compartments and the transit times of cells in the SC, CFU-Meg and MKB compartments are functions of micro-environmental conditions.

82. (previously presented): The system of claim 81 wherein in the SC compartment when the TPO concentration is above a predetermined threshold, the transit time of a cell is shortened based on the dose.

83. (previously presented): The system of claim 81 wherein in the CFU-Meg and MKB compartments, the transit time of a cell is solely based on TPO concentration.

84. (previously presented): The system of claim 77 wherein a fraction of cells in the SC compartment commits to megakaryocytic lineage, said fraction being dependent on TPO concentration.

85. (original): The system of claim 77 wherein in the CFU-Meg and MKB compartments, every mature cell passes on to the next compartment.

86. (previously presented): The system of claim 77 wherein in the MK16, MK32 and MK64 compartments, a fraction of cells passes on to the next compartment, said fraction being dependent on the TPO concentration.

87. (original): The system of claim 77 wherein cells from MK128 compartment do not flow into any other compartment.

88. (original): The system of claim 74, wherein each of said compartments is further divided into sub-compartments, each of said sub-compartments containing cells of a specific age in hours.

89. (original): The system of claim 88 wherein cells that spend all their corresponding transit time in a given compartment pass on to the next compartment, wherein cells that have left a corresponding compartment each hour fill the first sub-compartment of the next compartment.

90. (original): The system of claim 88, wherein the platelet releasing cells contribute platelets to the first sub-compartment of the PL compartment.

91. (previously presented): The system of claim 66, wherein said model is capable of being used for recommending an optimal treatment protocol, wherein said system further comprises:

a plurality of treatment protocols; and

a selector to select an optimal treatment protocol from said plurality of treatment protocols based on the modified system model.

92.-100. canceled.

101. (previously presented): A system for modeling thrombopoietic lineage in a general patient, said system comprising a thrombopoiesis system model including a process model for cells involved in thrombopoiesis, wherein said process model further includes a plurality of compartments and

wherein said compartments include:

a stem cell (SC) compartment that is capable of modeling bone marrow hemopoietic progenitors that have an ability to differentiate into more than one cell line wherein cells in the stem cell compartment proliferate, mature and differentiate into one of megakaryocyte progenitors and new stem cells;

a colony forming units - megakaryocytes (CFU-Meg) compartment that is capable of modeling megakaryocyte progenitors getting committed as a megakaryocyte line and spending some time multiplying and maturing;

a megakaryoblast (MKB) compartment that is capable of modeling receiving of cells from CFU-Meg compartment, wherein the cells in the MKB compartment have lost their ability to proliferate but are not mature to release platelets;

an MK16 compartment that is capable of modeling receiving of cells from the MKB compartment, wherein a subset of cells in the MK16 compartment releases platelets at a constant rate until the subset of cells exhausts its capacity to release platelets and is disintegrated and a second subset of cells does not release platelets but continues with endomitosis;

an MK32 compartment that is capable of modeling receiving of the second subset of cells from the MK16 compartment, wherein a subset of cells in this compartment releases platelets and a second subset of cells does not release platelets but continues with endomitosis;

an MK64 compartment that is capable of modeling receiving of the second subset of cells from the MK32 compartment wherein a subset of cells in this compartment releases platelets and a second subset of cells does not release platelets but continues with endomitosis;

an MK128 compartment that is capable of modeling receiving of the second subset of cells from the MK64 compartment wherein a subset of cells in this compartment releases platelets;

a platelets (PL) compartment.

102. (previously presented): The system of claim 101 wherein the process model further comprises computations that include an effect of apoptosis on cell numbers .

103. (previously presented): The system of claim 101 wherein the process model further comprises the effects of TPO on the SC, CFU-Meg and MKB compartments.

104. (original): The system of claim 103 wherein the effects are expressed in terms of effects of TPO concentration on amplification rate, rate of cell maturation and a fraction of cells that undergo endomitosis.

105. (previously presented): The system of claim 104 wherein when the TPO concentration is above a predetermined threshold level, the amplification rate of cells in the SC compartment is affected and when the TPO concentration is below the predetermined threshold, the amplification rate is dependent only on a current number of cells.

106. (original): The system of claim 103 wherein in the CFU-Meg compartment the cells are sensitive to TPO concentration regardless of the concentration of TPO.

107. (previously presented): The system of claim 103, wherein a transit time of a cell is the same in all platelet releasing compartments and transit times of cells in the SC, CFU-Meg and MKB compartments are functions of micro-environmental conditions.

108. (previously presented): The system of claim 107 wherein in the SC compartment when the TPO concentration is above a predetermined threshold, the transit time of a cell is shortened based on the dose.

109. (previously presented): The system of claim 107 wherein in the CFU-Meg and MKB compartments, the transit time of a cell is solely based on TPO concentration.

110. (previously presented): The system of claim 103 wherein a fraction of cells in the SC compartment commits to megakaryocytic lineage, said fraction being dependent on TPO concentration.

111. (original): The system of claim 103 wherein in the CFU-Meg and MKB compartments, every mature cell passes on to the next compartment.

112. (original): The system of claim 103 wherein in the MK16, MK32 and MK64 compartments, a fraction of cells pass on to the next compartment, said fraction being dependent on the TPO concentration.

113. (original): The system of claim 103 wherein cells from MK128 compartment do not flow into any other compartment.

114. canceled.

115. (previously presented): A system for modeling thrombopoietic lineage in a general patient, said system comprising a thrombopoiesis system model including a process model for cells involved in thrombopoiesis, wherein said process model further includes a plurality of components wherein each of said compartments is further divided into sub-compartments, each of said sub-compartments containing cells of a specific age in hours

wherein cells that spend all their corresponding transit time in a given compartment pass on to the next compartment, wherein cells that have left a corresponding compartment each hour fill the first sub-compartment of the next compartment.

116. (original): The system of claim 115, wherein the platelet releasing cells contribute platelets to the first sub-compartment of the PL compartment.

117.-331. canceled.

332. (previously presented): A method for modeling thrombopoietic lineage in an individual, said method comprising:

modeling a process to create a process model for cells involved in thrombopoiesis; and

modifying the process model based on parameters specific to the individual.

333. (previously presented): The method of claim 332 wherein a progression of cells involved in diseased thrombopoiesis is incorporated in the process model.

334. (previously presented): The method of claim 333 wherein diseased thrombopoiesis includes thrombocytopenia.

335. (previously presented): The method of claim 333 wherein effects of at least one drug in the progression of cells involved in thrombopoiesis is incorporated.

336. (previously presented): The method of claim 335 wherein said at least one drug is thrombopoietin (TPO).

337. (original): The method of claim 333 wherein said process model imitates a course of the individual's bone marrow progression, peripheral platelet counts and TPO concentration changes.

338. (previously presented): The method of claim 333, wherein said process model comprises cell-suppressive treatment effects and effects of administration of TPO to a patient.

339. (original): The method of claim 338, wherein said cell-suppressive treatment is chemotherapy.

340. (previously presented): The method of claim 333, wherein said method is used for recommending an optimum treatment protocol, and wherein said method further comprises:

enumerating a plurality of treatment protocols; and

selecting an optimal treatment protocol from said plurality of treatment protocols.

341-509. canceled.